

## Northwest Indian Fisheries Commission Grant Program

### FY 2011 Noncompetitive Tribal Projects for Restoration and Protection of Puget Sound

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Phone Number:	360-466-7203; Fax 360-466-1615
Grant Name:	NWIFC FY 2011 Noncompetitive Tribal Projects for Restoration and Protection of Puget Sound
Project Period:	May 1, 2011 – September 30, 2015
Project Officer Name and Address:	Tiffany J. Waters Northwest Indian Fisheries Commission 6730 Martin Way East Olympia, WA 98516
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#### 1. **Project Title:** Coast Salish Tribal Journey Water Quality Project (TJWQP)

##### **Work Plan Abstract:**

Since 2008, the Coast Salish Nation and Swinomish Indian Tribal Community in partnership with the U.S. Geological Survey (USGS) has examined the coastal waters of the Salish Sea providing a new strategy that blends western science and Coast Salish culture to study water-quality and its effects on ecosystem dynamics. The foundation of the study is the annual Tribal Journey, whereby canoe families traveling their ancestral highways collect surface-water samples producing 4 or 5 simultaneous water property profiles across the Salish Sea. The results are disseminated near real-time via the web ([www.usgs.gov/coastsalish](http://www.usgs.gov/coastsalish)) helping to identify impaired water bodies (e.g. algae blooms) and conditions worthy of subsequent study. In addition to *in-situ* water samples, canoe pullers and scientists, traveling together, collect observational data providing context for the quantitative data. Local indigenous knowledge shared during the Journey helps guide the TJWQP's focus and provides unprecedented opportunities to learn about the Salish Sea's natural history in ways science alone can not offer. The exchanges made between science and traditional knowledge within indigenous communities along the Journey facilitate increased awareness of ecosystem issues, conservation and stewardship.

Through the partnership, USGS provides valuable synthesis and interpretation of scientific measurements, helping to quantify environmental patterns, identify areas of impairment and through time, detect changes and trends related to land use and climate change. These results are used to implement follow-up studies with Coast Salish and partners seeking improved understanding of ecosystem vulnerability. The information

collected during the annual Tribal Journeys can be used to advise Coast Salish Leadership in making policy decisions regarding Salish Sea resources.

2. **Tribe:** Swinomish Indian Tribal Community
3. **Project Location:** Salish Sea
4. **Eligible Activities to be Addressed:**
  - a. Activity E.3 continually improve the scientific basis for management actions in Puget Sound through a comprehensive and prioritized regional science program
  - b. Activity E.4 Increase and sustain coordinated efforts for communication, outreach, and education to increase public awareness and encourage individual stewardship
  - c. Activity based exert from Grant Announcement
    1. For example, many Tribes submitted comments on the Action Agenda/CCMP, highlighting activities within it that need to be addressed as a high priority for Puget Sound area Tribes.  
([http://www.psp.wa.gov/downloads/AA2009/comment\\_summaries/Tribes.pdf](http://www.psp.wa.gov/downloads/AA2009/comment_summaries/Tribes.pdf)). In addition, at the annual Coast Salish Gatherings, leaders of Coast Salish Tribes have identified priority concerns that affect many Tribes in the greater Puget Sound Basin, such as threats to traditional foods upon which Coast Salish depend; water quality and quantity; and impacts of climate change  
(<http://www.coastsalishgathering.com/01gathering/proceedings.shtml>). Documents such as these identify issues of exceptional concern among the broad scope of all Puget Sound protection and restoration issues and project
5. **Proposed Starting and Ending Dates:** May 1, 2011-April, 30 2012
6. **Project Coordinator:** Charles O'Hara, Swinomish Indian Tribal Community Planning Department, 11430 Moorage Way, La Conner, Wash. 360-466-4047 (fax), 360-466-7200
7. **Project Development:**

**Need for Project:** The Tribal Journey's Water Quality Project has grown into a meaningful trans-boundary data collection and information sharing tool for Tribes ,First Nations , federal (EPA) and state (WA Department of Ecology) agencies, with applications to Washington State's biennial marine water quality assessments and 303(d) designations. Results are examined with Coast Salish partners, shared to the public via the web ([www.usgs.gov/coastsalish](http://www.usgs.gov/coastsalish)) and through public presentations (<http://online.wr.usgs.gov/calendar/2009/oct09.html>), and are published in USGS and Coast Salish reports (Akin and Grossman, 2009; 2010, Akin and Grossman, 2011 in review).

**Plans:** TJWQP staff are actively planning for the 2011 (year 4) Journey to Swinomish and solicit assistance through this funding opportunity to conduct the measurements made along the Tribal Journey. During the 2011 Tribal Journey to Swinomish, the TJWQP proposes to monitor water-properties (surface-water temperature, salinity, pH, dissolved-oxygen, and turbidity) along four pathways. Special project monitoring for 2011 will include water-property depth profiles and water samples which will be analyzed for plankton community composition, dissolved nutrients, and chlorophyll. These measurements will be collected from support boats following the canoes and stations are spaced at five kilometer intervals along two of the tracks (South Puget Sound traveling north and northern Strait of Georgia traveling south). Three moorings measuring water-properties will be deployed at Samish Bay, Nanaimo estuary, and the Nisqually delta over a three month period.

This proposal section is a key element that provides information for the Puget Sound Partnership Action Plan under international outreach, public and cross agency information sharing. The Project has grown to include data collection on algae blooms but also climate change modeling and monitoring. The USGS partners of the TJWQP are currently developing a model for each mooring site that predicts the likely warming effect on surface water temperatures in the future with expected increase in peak and mean air temperatures from the recent UW-CIG down-scaled climate models.

**Justification:**

The TJWQP enters its fourth year in 2011 and has built strong collaborative relationships and scientific capacity to capture summer water quality conditions and quantify variability across the vast Salish Sea region. The proposed work will enable collection of data from canoes along principal routes of the Tribal Journey and their analyses relative to findings from 2008-2010. The results of this element of the project will be combined with studies of water profiles, nutrients, plankton and mooring data that provide time-series in order to provide a more comprehensive understanding of processes that influence the Salish Sea ecosystem including land use, nearshore circulation and climate change.

The canoe track data are unique in mapping out spatial patterns at multiple scales, detecting large-scale oceanographic/climate and site-scale land-use influences. Through special studies the project examines the spatial relation of nutrients with plankton community structure, with the potential to determine presence and extent of harmful algal blooms, and impacts and vulnerability along gradients in urbanization, watershed activities, and regional oceanography. It also examines the spatial and temporal variability in habitat quality of shallow river-delta and nearshore settings that experience extreme ranges in temperature, salinity, and turbidity that impact valued marine resources and ecosystem connectivity for culturally important salmonids, shellfish, and their prey. Additional actions in

years two through six will entail the implementation of the public information and outreach strategy.

**a. Project Tasks, Outputs, and Outcomes**

**Project Objectives and Tasks:**

The Objectives of the Tribal Water Quality Project are three-fold:

1. Gather water-quality data across the Salish Sea to quantify variability, detect changes and trends, and identify impaired water bodies (primarily during the summer Tribal Journey by canoe, and to the extent possible by moorings and support vessels we term “special projects”).
2. Analyze data and synthesize results of TJWQP track and special projects data into a report for public dissemination.
3. Engage Tribal Communities in environmental monitoring education through technical trainings and environmental outreach.

**Project Outputs - Year 1**

1. Conduct data collection, analysis, and provide report of the 2011 Tribal Journey Water Quality Project.
2. Water-Quality training sessions provided by U.S. Geological Survey and Swinomish Indian Tribal Community Water Resource Specialists for Tribal students and employees participating in the water-quality monitoring which contributes to the TJWQP.
3. Development of functional website, presentations, and public outreach opportunities

**Outputs - Years 2 through 6**

Implementation of recommended actions developed in the Strategic Work Plan, possibly including:

1. Continue the water quality data collection and reach out to tribes and first nations, state, provincial and federal agencies for more inclusion and information sharing and potential partnerships in trans-boundary projects.
2. Strengthen the special projects aspect of the TJWQP to include additional data collection to test for temporal changes across the projects established station network and create opportunities for focused studies based on results of the TJWQP.
2. Written educational materials for training the Tribal students using methods from both western science and local indigenous knowledge, and reaching out to other local and state colleges and universities through partnerships with USGS.

**Outcomes:**

Continuation of the water-quality data collection of the Salish Sea and expanding the research to include focused studies of temporal and topical issues of concern to Coast Salish (for example, plankton and bloom dynamics/impacts, hydrodynamic processes affecting harvest areas) strengthen the partnerships and collaborations toward shared projects, information sharing, and trans-boundary opportunities, trainings and creating and enhancing communications and tools for sharing results with the public.

**b. Project Timeline**

Task/Milestone	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
Task 1: Gather, Water-Quality data: track and special projects												
Task 2: Data analysis and reporting												
Task 3: Engage Tribal Communities in environmental monitoring education												

**c. Project Cooperators:**

- U.S. Geological Survey – The Technical Education to Support Native American Relations (TESNAR) grant was awarded to the TJWQP for 2011 contributing to Water-quality training session and a portion of the equipment costs for the Journey Project. Staff time is also matched through USGS for project planning, data collection, and analysis of the special projects water samples. USGS and the Department of Interior have contributed funds to the project in previous years. In the next month the project should know if these funds are available for the 2011 efforts.
- The Coast Salish Gathering partially funds the Tribal Journey Coordinator position (39%)
- Tribal Journey Canoe Families from across the Salish Sea volunteer space on their canoes to provide the base platform from which we conduct our research. In previous years Tribal support boats volunteered to help conduct special projects data collection.
- Additional need: If funds are not acquired to fulfill the remaining project budget, data collection, analysis and reporting will still occur with amendments made to the sampling design. The modified work plan for the base project would include canoe track data collection along two or three routes (South Puget Sound and North Georgia Strait being the primary focus) instead of five routes. Special projects: Moorings will be reduced to two locations and the support boat station spacing will be increased to 10 kilometers between stations. Volunteer staff and equipment loans/donations will also be solicited to fulfill unmet funding needs.

**d. Project Management:**

The project management will be overseen by Charles O'Hara, Swinomish Planning Director. Through regular meetings with key staff and project consultants the project's timelines, deliverables, and reports will be evaluated to insure that project goals are met. Funding for this position is written into the Swinomish Indian Tribal Community annual budget.

## 8. Budget- Total Budget for Year One:

### Budget Narrative:

The proposed EPA Y1 budget will be used to fund the Tribal Journey Coordinator position. This position is the highest priority for funding because the responsibilities include program management, coordination, data collection and analysis, as well as reporting and outreach for the TJWQP. If the award is granted, the Tribal Journey Coordinator position will be funded at 75% FTE through December 2011. Funds will also be used to purchase calibration solutions for the YSI instruments. Travel associated with the data collection phase of the TJWQP will be partially funded through this proposal.

Swinomish Indirect costs have been waived for this project.

### Detail Budget

SALARY/BENEFITS	Per Hr	Hours	FTE	Total Cost	Budget	Secured Funding	EPA FY1 Contribution to Project	EPA FY2-6 Contribution to Project
Tribal Journey Coordinator	\$ 21.22	1560	75%	\$ 33,103				
<b>Total</b>		<b>1560</b>			<b>\$ 33,103</b>	<b>\$ 12,702</b>	<b>\$ 20,401</b>	<b>\$ 102,006</b>

BENEFITS	Fringe			Total Cost				
Tribal Journey Coordinator	41%			\$ 13,572				
<b>Total</b>					<b>\$ 13,572</b>	<b>\$ 5,297</b>	<b>\$ 8,275</b>	<b>\$ 41,377</b>

CONTRACTED SERVICES	Rate	Hours		Total Cost				
Support Boat/Operator	\$ 60.00	30	2	\$ 3,600				
Water Quality Technicians	\$ 10.00	250	2	\$ 5,000				
Publication Staff	\$ 1,500.00	NA	2	\$ 3,000				
<b>Total</b>					<b>\$ 11,600</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

SUPPLIES				Total Cost				
Canoe Journey Rental Fees	RENT/Mo	Units	Subtotal	2 months				
YSI 6920 package	\$ 442	5	\$ 2,210	\$ 4,420				
Supplies	Unit Cost	Quantity	Subtotal	Total				
Calibration Solutions	\$582	2	\$1,164	\$1,164				
Misc hardware/notepads/cord/coolers	\$200	5	\$1,000	\$1,000				
Phytoplankton Sampling Supplies	\$100	4	\$400	\$400				
Nutrient Supplies	\$200	3	\$600	\$600				
<b>Total</b>					<b>\$ 7,584</b>	<b>\$ 2,000</b>	<b>\$ 500</b>	<b>\$ 2,500</b>

TRAVEL	Cost	Quantity		Total				
Mileage: Car	\$ 0.510	4000		\$ 2,040				
Per Diem (average location \$50)	\$ 50	40		\$ 2,000				
<b>Total</b>				<b>\$ 4,040</b>	<b>\$ 4,040</b>	<b>\$ 300</b>	<b>\$ 529</b>	<b>\$ 2,645</b>

DIRECT TOTAL					\$ 69,900	\$ 20,299	\$ 29,706	\$ 148,528
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<b>Objective 1: Gather Salish Sea Environmental Data</b>	<b>Task</b>	<b>Hours</b>	<b>Price (\$/hr)</b>	<b>Salary</b>	<b>Fringe (41% of salary)</b>	<b>Contractual</b>	<b>Supplies</b>	<b>Travel</b>	<b>Total Amount</b>	<b>EPA FY1 Spending</b>
<b>Task 1A Project Planning and Coordination</b>	Facilitation and Administrative Tasks	400	\$21.22	\$8,488	\$3,480			\$750	\$12,718	\$1,000
<b>Task 1B Data Collection Canoe Tracks</b>	Support Technicians/Collect WQ Data	80	\$21.22	\$1,698	\$696	\$5,000	\$5,534	\$1,790	\$14,718	\$1,820
<b>Task 1C Data Collection Special Projects</b>	Support Boat Monitoring	40	\$21.22	\$849	\$348	\$3,600	\$1,000		\$5,797	\$1,197
	Maintain Buoyed Instruments	120	\$21.22	\$2,546	\$1,044		\$1,050	\$1,500	\$6,140	\$3,590
	<b>Objective 1 Totals</b>	<b>640</b>		<b>\$13,581</b>	<b>\$5,568</b>	<b>\$8,600</b>	<b>\$7,584</b>	<b>\$4,040</b>	<b>\$39,373</b>	<b>\$7,607</b>
<b>Objective 2: Data Analysis and Reporting</b>	<b>Task</b>	<b>Hours</b>	<b>Price (\$/hr)</b>	<b>Salary</b>	<b>Fringe (41% of salary)</b>	<b>Contractual</b>	<b>Supplies</b>	<b>Travel</b>	<b>Amount</b>	<b>EPA FY1 Spending</b>
<b>Task 2A Canoe Track Data Processing and Analysis</b>	Data Entry and Record Keeping	30	\$21.22	\$637	\$261				\$898	\$1,804
	Data Analysis	60	\$21.22	\$1,273	\$522				\$1,795	\$4,210
	Reporting	200	\$21.22	\$4,244	\$1,740	\$1,500			\$7,484	\$6,463
	Supporting research and development	40	\$21.22	\$849	\$348				\$1,197	
<b>Task 2B Special Projects Data Processing and Analysis</b>	Data Entry and Record Keeping	30	\$21.22	\$637	\$261				\$898	\$1,203
	Data Analysis	200	\$21.22	\$4,244	\$1,740				\$5,984	\$8,419
	Reporting	200	\$21.22	\$4,244	\$1,740	\$1,500			\$7,484	
	Supporting research and development	40	\$21.22	\$849	\$348				\$1,197	



			Objective 2 Totals		800		\$16,976	\$6,960	\$3,000	\$0	\$0	\$26,936	\$22,099
Objective 3: Engage Tribal Communities in environmental monitoring education			Task	Hours	Price (\$/hr)	Salary	Fringe (41% of salary)	Contractual	Supplies	Travel	Amount	EPA FY1 Spending	
Task 3A Water-Quality technical trainings			Curriculum development	20	\$21.22	\$424	\$174				\$598		
			Conduct Trainings	30	\$21.22	\$637	\$261				\$898		
Task 3B Environmental Outreach on TJWQP			Develop Outreach Materials	40	\$21.22	\$849	\$348				\$1,197		
			Disseminate Information	30	\$21.22	\$637	\$261				\$898		
			Objective 3 Totals		120		\$2,546	\$1,044	\$0	\$0	\$0	\$3,590	\$0
	Hours	Price (\$/hr)	Salary	Fringe (41% of salary)	Contractual	Supplies	Travel	Amount	EPA FY1 Spending				
Check	1,560	-	\$ 33,103	\$ 13,572	\$ 11,600	\$ 7,584	\$ 4,040	\$ 69,900	\$29,706				

**References:**

- Akin, S.K., and Grossman, E.E., 2011, Coast Salish and U.S. Geological Survey 2011 Tribal Journey water quality project: United States Geological Survey Open-File Report 2011-XXX, X p. [In Review].
- Akin, S.K., and Grossman, E.E., 2010, Coast Salish and U.S. Geological Survey 2010 Tribal Journey water quality project: United States Geological Survey Open-File Report 2010-1143, 60 p. [<http://pubs.usgs.gov/of/2010/1143/>].
- Akin, S.K., Grossman, E.E., Lekanof, D., O'Hara, C., 2009, Coast Salish and U.S. Geological Survey: Tribal Journey water quality project, Coast Salish Gathering Report 2009-001, 58 p. [last accessed March 1, 2010, at <http://walrus.wr.usgs.gov/reports/reprints/TJWQP.pdf> ]